and v_2, respectively. By such a process, the models in a range from the original model to the most approximated model can be smoothly continuously obtained.

By the above processes, the discrete hierarchical approximated model can be obtained and the model of the middle layer can be also obtained. The approximated model obtained and stored as mentioned above is switched in accordance with the size, position, speed, and attention point of the viewer of the apparent model on the picture plane in the display apparatus **8** and is displayed in step S8. FIGS. **7A** and **7B** show examples of the approximated model derived by the embodiment.

FIG. **12** schematically shows an example of the. processing results according to the embodiment. In this example, the original model is a sphere comprising 182 vertices, 360 planes, and 279 texture coordinates. An image of the earth is adhered as a texture to the sphere. It is approximated for the original model by reducing every 60% in comparison of the number of vertices. FIG. **13** shows a wire frame state of a model when the texture of the same approximated model is not adhered. In FIG. **12**, since the image is consistently held, it is difficult to know a degree of approximation, in the approximated state before the texture image is adhered as shown in FIG. **13**, the progress of the approximation can be clearly seen.

As specifically shown in FIG. **13**, by using the present invention, even if the number of vertices is reduced to 36% or 21.6% of the original model, the hierarchical approximated model can be obtained without losing the general shape which the original model has.

Although the case where the texture image is adhered to the polygon model has been described above, the invention can be also obviously applied to the case where the texture image is not adhered. In this case, step S6 can be omitted in the flowchart shown in FIG. **1** mentioned above.

As described above, according to the invention, when image data (texture) is adhered to geometric data such as polygon data which is used in the CG, the model can be approximated to a desired degree of details while preventing the breakage of the texture shape or an apparent deterioration of the quality.

According to the invention, therefore, there is an effect such that the geometric model which is used in the CG can be approximated in a state in which the texture is adhered. There is also an effect such that not only is the model approximated but also the breakage of the appearance of the texture in the approximation result can be suppressed.

By using the geometric model approximated by the method based on the invention, in the drawing of the CG, there is an effect such that a request for drawing of at a high speed and at a high picture quality can both be satisfied.

Further, according to the invention, an importance degree of each edge constructing the geometric model which is used for the CG can be evaluated by an evaluation value. There is an effect such that the geometric model can be approximated by preferentially removing the edge of a low evaluation value of the edge.

According to the invention, the position of the vertex remaining after the edge was removed can be determined so as to suppress a change in general shape. Thus, there is an effect such that a feeling of disorder upon looking when drawing by using the approximated model can be suppressed.

According to the invention, figure data which is used in the CG can be approximated by a plurality of resolutions. There is an effect such that by using the figure data derived by the invention, both of the goals of drawing at a high speed and drawing with a high quality can be satisfied.

The present invention is not limited to the foregoing embodiments but many modifications and variations are possible within the spirit and scope of the appended claims of the invention.

What is claimed is:

1. A method of approximating an image by decreasing an amount of image data used to create the image, wherein said image data defines a polygonal framework, said framework being composed of line segments drawn between vertices, said method comprising:

evaluating a degree of importance of each line segment of said framework;

removing at least one unnecessary line segment from said framework which is identified based on said evaluation of said degree of importance of each line segment; and

determining a position of a vertex after said unnecessary line segment is removed.

2. The method of claim **1**, wherein said image data defines a 3-dimensional polygonal framework.

3. The method of claim **1**, wherein said evaluating a degree of importance of each line segment is performed by evaluating an amount by which a volume of the polygonal framework defined by the image data is changed by removal of a particular line segment.

4. The method of claim **3**, wherein said evaluating a degree of importance of each line segment further comprises assigning a line segment a degree of importance in direct proportion to the amount of volume change caused by removal of that line segment.

5. The method of claim **1**, wherein said evaluating a degree of importance of each line segment is performed using a vector (E) which represents a particular line segment, an area (A) of a polygon within said polygonal framework wherein said particular line segment is a side of said polygon, and a vector (N) normal to a plane of said polygon.

6. The method of claim **5**,

wherein said evaluating a degree of importance of each line segment further comprises calculating an importance of a particular line segment by $(N \cdot E) \times A$,

wherein E is said vector representing a particular line segment, A is said area of a polygon sided by said particular line segment, and N is said normal vector.

7. The method of claim **1**, wherein said evaluating a degree of importance of each line segment is performed based on an amount by which an area of said polygonal framework defined by said image data is changed by removal of a particular line segment.

8. The method of claim **7**, wherein said evaluating a degree of importance of each line segment further comprises assigning a degree of importance to a particular line segment in direct proportion to said amount by which said area of said polygonal framework is changed by removal of that line segment.

9. The method of claim **1**, wherein said evaluating a degree of importance of each line segment is performed based on a length of a particular line segment and an area of a polygon within said polygonal framework of which said particular line segment is a side.

10. The method of claim **9**, wherein said evaluating a degree of importance of each line segment further comprises calculating a sum of results of an equation $|E| \times A$ for polygons sided by said particular line segment, wherein "|E|" is length of that line segment, "A" is an area of a polygon sided by said particular line segment.

11. The method of claim **1**, wherein said evaluating a degree of importance of each line segment is performed based on a length of said line segments.

12. The method of claim 11, wherein said evaluating a degree of importance of said line segments further comprises assigning a degree of importance to each line segment in direct proportion to a length of that line segment.

13. The method of claim 1, wherein if two or more line segments are assigned an identical degree of importance, said method further comprises assigning a lowest degree of importance among said two or more line segments to that line segment of said two or more line segments with a shortest length.

14. The method of claim 1, further comprising repeating said steps of evaluating a degree of importance of each line segment; removing an unnecessary line segment; and determining a position of a vertex after said unnecessary line segment is removed.

15. The method of claim 1, wherein said evaluating a degree of importance of each line segment is performed based on an amount by which an amount of said image data is changed by removal of a particular line segment.

16. The method of claim 1, wherein said evaluating a degree of importance of each line segment is performed based on importance values assigned by a user to one or more of said line segments.

17. The method of claim 16, further comprising specifying one or more of said line segments as of high importance, wherein said evaluating a degree of importance of each line segment further comprises preventing said one or more high importance line segments from being designated as said unnecessary line segment.

18. The method of claim 1, wherein said determining a position of a vertex after said unnecessary line segment is removed comprises positioning said vertex at said position such that a total loss of area between a framework including said unnecessary line segment and a framework in which said unnecessary line segment is removed is minimized.

19. The method of claim 1, wherein said determining a position of a vertex after said unnecessary line segment is removed comprises positioning a vertex at a position such that a loss of area to said framework caused by removal of said unnecessary line segment is approximately equal for portions of said framework on opposite sides of said vertex.

20. The method of claim 1, wherein said determining a position of a vertex after said unnecessary line segment is removed comprises positioning said vertex at a position corresponding to an end of said removed unnecessary line segment.

21. The method of claim 1, further comprising, generating an intermediate configuration of said image data by decreasing a length of said unnecessary line segment prior to said step of removing said unnecessary line segment.

22. The method of claim 1, further comprising, generating an intermediate polygonal framework between an original framework including said unnecessary line segment and a new framework with said unnecessary line segment removed.

23. The method of claim 22, wherein said generating an intermediate framework comprises locating a vertex an a position intermediate to a vertex position in said original framework and a vertex position determined in said step of determining a position of a vertex after said unnecessary line segment is removed.

24. The method of claim 23, wherein said locating a vertex at an intermediate position comprises using a linear interpolation on said vertex position in said original framework and said vertex position determined in said step of determining a position of a vertex after said unnecessary line segment is removed.

25. The method of claim 1, further comprising reconfiguring a texture applied to said framework to account for said removing of said unnecessary line segment.

26. The method of claim 1, wherein said evaluation of a degree of importance of each line segment is based in part on an evaluation of the degree of importance of line segments contiguous to a particular line segment being evaluated.

27. The method of claim 1, further comprising reconfiguring said framework after said unnecessary line segment has been removed by placing a new vertex at said position identified in said step of determining a position of a vertex.

28. The method of claim 27, wherein said reconfiguring comprises using said new vertex to replace a previous vertex located at an end of said unnecessary, removed line segment.

29. The method of claim 1, wherein said evaluating a degree of said line segment is performed on the basis of a removal importance value of the line segment obtained from a change amount of said image data caused by the removing of said line segment and on the basis of an assigned importance value of the line segment assigned by a user.

30. The method of claim 29, wherein said evaluating a degree of importance of the line segment decides that the degree of importance of said line segment is small, if said removal importance value and said assigned importance value are both small.

31. The method of claim 29, wherein said assigned importance value is a removing order of said line segments.

32. The method of claim 17, wherein said specifying the at least one line segment as of high importance is performed by a user.

33. The method of claim 17, wherein said specifying the at least one line segment as of high importance specifies a portion where more than two image data are adjacent.

34. The method of claim 18, wherein when the shape of the portion that includes said unnecessary line segment is a concave or convex shape, said vertex is positioned where said total loss of area is minimized.

35. The method of claim 19, wherein when the shape of the portion where said unnecessary line segment is a S-character shape, said vertex is arranged at a position where a loss of area between said original framework and said reconfigured framework is equal on both sides of said vertex.

36. The method of claim 1, wherein said determining a position of said vertex determines the vertex at a position of one of the vertices of the removal line segment.

37. The method of claim 1, further comprising, generating an intermediate configuration of said image data by decreasing a length of said unnecessary line segment.

38. The method of claim 1, further comprising, generating a framework at an intermediate layer between an original framework which is the polygonal framework before said unnecessary line segment is removed and a reconfigured framework which is the polygonal framework after said unnecessary line segment is removed by determining a position of vertices in the intermediate layer on the basis of the relation of the position of said vertices between said original framework and said reconfigured framework.

39. The method of claim 38, said position of said vertices at said intermediate layer is determined by the interpolation of said position of said vertices in said original framework and said reconfigured framework.

40. The method of claim 39, said interpolation is a linear interpolation.

41. The method of claim 1, wherein said removing of said unnecessary line segment removes either one of two vertices

constructing the unnecessary line segment; and wherein said determining of a position of said vertex determines the shift amount of the vertex which is constructing the unnecessary line segment and not removed on said removing of said unnecessary line segment.

42. A method of approximating an image by decreasing an amount of image data used to create the image, wherein said image data defines a polygonal framework formed of polygons to which textures or pictures are applied, said polygons of said framework being composed of line segments connected between vertices, said method comprising:

evaluating a degree of importance of each line segment of said framework;

removing an unnecessary line segment identified by said step of evaluating a degree of importance of each line segment;

reconfiguring said framework to account for said removal of said line segment; and

reconfiguring said textures or pictures applied to said framework to account for said removal of said line segment.

43. The method of claim 42, wherein said reconfiguring the textures or pictures applied to the framework is preformed altering an association between a vertex of said unnecessary line segment and any of said textures or pictures.

44. The method of claim 42, wherein:

said reconfiguring of said framework comprises replacing two vertices of said framework, between which said unnecessary, removed line segment had been connected, with a single new vertex; and

said reconfiguring the textures or pictures applied to the framework comprises determining a new position on said textures or pictures corresponding to a position of said single new vertex in said framework.

45. The method of claim 44, wherein said reconfiguring of said textures or pictures applied to the framework comprises determining said new position by interpolation between two points on the textures or pictures which correspond to the unnecessary line segment.

46. The method of claim 45, wherein said interpolation is a linear interpolation.

47. The method of claim 42, wherein said evaluating a degree of importance of each line segment of said framework further comprises preventing any line segment existing on an outline of any of said textures or pictures from being designated as said unnecessary line segment.

48. The method of claim 42, wherein said evaluating a degree of importance of each line segment of said framework further comprises preventing any line segment, which exists on an outline of any of said textures or pictures from being designated as said unnecessary line segment if a change in an area of said texture or picture resulting from removal of that line segment exceeds a predetermined value.

49. The method of claim 48, wherein said area change amount after the line segment removal is obtained on the basis of a calculation of sum of results of an equation $|(N \cdot E) \times L|$ at line segments corresponding to the boundary lines of the texture or picture existing before and after the line segment to be removed, wherein "E" is representing that line segment, "L" is a length of line segment corresponding to the boundary lines of the texture or picture, "N" is a normal vector of said line segments, "·" is a inner product, and "×" is a product.

50. The method of claim 42, wherein said image data defines a 3-dimensional polygonal framework.

51. The method of claim 42, wherein said evaluating a degree of importance of each line segment is performed by evaluating an amount by which a volume of the polygonal framework defined by the image data is changed by removal of a particular line segment.

52. The method of claim 51, wherein said evaluating a degree of importance of each line segment further comprises assigning a line segment a degree of importance in direct proportion to the amount of volume change caused by removal of that line segment.

53. The method of claim 42, wherein said evaluating a degree of importance of each line segment is performed using a vector (E) which represents a particular line segment, an area (A) of a polygon within said polygonal framework wherein said particular line segment is a side of said polygon, and a vector (N) normal to a plane of said polygon.

54. The method of claim 53,

wherein said evaluating a degree of importance of each line segment further comprises calculating an importance of a particular line segment by $(N \cdot E) \times A$,

wherein E is said vector representing a particular line segment, A is said area of a polygon sided by said particular line segment, and N is said normal vector.

55. The method of claim 42, wherein said evaluating a degree of importance of each line segment is performed based on an amount by which an area of said polygonal framework defined by said image data is changed by removal of a particular line segment.

56. The method of claim 55, wherein said evaluating a degree of importance of each line segment further comprises assigning a degree of importance to a particular line segment in direct proportion to said amount by which said area of said polygonal framework is changed by removal of that line segment.

57. The method of claim 42, wherein said evaluating a degree of importance of each line segment is performed based on a length of a particular line segment and an area of a polygon within said polygonal framework of which said particular line segment is a side.

58. The method of claim 57, wherein said evaluating a degree of importance of each line segment further comprises calculating a sum of results of an equation $|E| \times A$ for polygons sided by said particular line segment, wherein "|E|" is length of that line segment, "A" is an area of a polygon sided by said particular line segment.

59. The method of claim 42, wherein said evaluating a degree of importance of each line segment is performed based on a length of said line segments.

60. The method of claim 59, wherein said evaluating a degree of importance of said line segments further comprises assigning a degree of importance to each line segment in direct proportion to a length of that line segment.

61. The method of claim 42, wherein if two or more line segments are assigned an identical degree of importance, said method further comprises assigning a lowest degree of importance among said two or more line segments to that line segment of said two or more line segments with a shortest length.

62. The method of claim 42, further comprising repeating said steps of evaluating a degree of importance of each line segment; removing an unnecessary line segment; reconfiguring said framework; and reconfiguring said textures or pictures.

63. The method of claim 42, wherein said evaluating a degree of importance of each line segment is performed based on an amount by which an amount of said image data is changed by removal of a particular line segment.

64. The method of claim 42, wherein said evaluating a degree of importance of each line segment is performed based on importance values assigned by a user to one or more of said line segments.

65. The method of claim 64, further comprising specifying one or more of said line segments as of high importance, wherein said evaluating a degree of importance of each line segment further comprises preventing said one or more high importance line segments from being designated as said unnecessary line segment.

66. The method of claim 42, wherein said reconfiguring said framework comprises positioning a vertex at a position such that a total loss of area between a framework including said unnecessary line and a framework in which said unnecessary line segment is removed is minimized.

67. The method of claim 42, wherein said reconfiguring said framework comprises positioning a vertex at a position such that a loss of area to said framework caused by removal of said unnecessary line segment is approximately equal for portions of said framework on opposite sides of said vertex.

68. The method of claim 42, wherein said reconfiguring said framework comprises positioning a new vertex at a position corresponding to an end of said removed unnecessary line segment.

69. The method of claim 42, further comprising, generating an intermediate configuration of said image data by decreasing a length of said unnecessary line segment prior to said step of removing said unnecessary line segment.

70. The method of claim 42, further comprising, generating an intermediate polygonal framework between an original framework including said unnecessary line segment and a new framework with said unnecessary line segment removed.

71. The method of claim 70, wherein said generating an intermediate framework comprises locating a vertex an a position intermediate to a vertex position in said original framework and a vertex position determined in said step of determining a position of a vertex after said unnecessary line segment is removed.

72. The method of claim 71, wherein said locating a vertex at an intermediate position comprises using a linear interpolation on said vertex position in said original framework and said vertex position determined in said step of determining a position of a vertex after said unnecessary line segment is removed.

73. The method of claim 42, wherein said evaluating a degree of importance of each line segment is based in part on an evaluation of a degree of importance of line segments contiguous to a particular line segment being evaluated.

74. The method of claim 42, wherein said reconfiguring said framework comprises using a new vertex to replace a previous vertex located at an end of said unnecessary, removed line segment.

75. The method of claim 42, wherein said reconfiguring said textures or pictures applied to said framework decides a new position of the corresponding point on said textures or pictures where an area change amount of said textures or pictures to be influenced by the approximation lies within a predetermined range.

76. The apparatus of claim 44, wherein said reconfiguring of said textures or pictures applied to the framework comprises determining said new position by interpolation between two points on the textures or pictures which correspond to the unnecessary line segment.

77. An apparatus for use with a display device that approximates an image by decreasing an amount of image data used to create the image, wherein said image data defines a polygonal framework, said framework being composed of line segments drawn between vertices, said device comprising:

a memory unit for storing said image data; and

a processor connected to said memory unit, wherein said processor is programmed to:

(a) assign an importance value to each line segment of said framework;

(b) remove from said framework that line segment having a lowest importance value; and

(c) reconfigure said framework to account for said removal of said line segment having said lowest importance value.

78. The apparatus of claim 77, further comprising an input device inputting said image data to said processor for storage in said memory unit.

79. The apparatus of claim 78, wherein said input device comprises a floppy disk drive.

80. The apparatus of claim 78, wherein said input device comprises a magneto-optical disk drive.

81. The apparatus of claim 77, further comprising a user input device for inputting data to said processor.

82. The apparatus of claim 81, wherein said user input device comprises a keyboard.

83. The apparatus of claim 77, wherein said processor is further programmed to reconfigure texture and pictures applied to said framework to account for removal of said line segment.

84. The apparatus of claim 77, said processor, in performing said reconfiguration of said framework, is programmed to replace two vertices of said framework, between which said removed line segment had been connected, with a single new vertex.

85. The apparatus of claim 77, wherein said image data defines a 3-dimensional polygonal framework.

86. The apparatus of claim 77, said processor, in performing said assignment of importance values, is programmed to evaluating an amount by which a volume of the polygonal framework defined by the image data is changed by removal of a particular line segment.

87. The apparatus of claim 86, said processor, in performing said assignment of importance values, is programmed to assign a line segment an importance value in direct proportion to the amount of volume change caused by removal of that line segment.

88. The apparatus of claim 77, said processor, in performing said assignment of importance values, is programmed to use a vector (E) which represents a particular line segment, an area (A) of a polygon within said polygonal framework, wherein said particular line segment is a side of said polygon, and a vector (N) normal to a plane of said polygon.

89. The apparatus of claim 88,

wherein said processor assigns an importance value to each line segment by calculating an importance of a particular line segment by $(N \cdot E) \times A$,

wherein E is said vector representing a particular line segment, A is said area of a polygon sided by said particular line segment, and N is said normal vector.

90. The apparatus of claim 77, said processor, in performing said assignment of importance values, is programmed to determine an amount by which an area of said polygonal framework defined by said image data is changed by removal of a particular line segment.

91. The apparatus of claim 90, wherein said processor assigns an importance value to a particular line segment in direct proportion to said amount by which said area of said polygonal framework is changed by removal of that line segment.

92. The apparatus of claim 77, wherein said processor, in performing said assignment of importance values, assigns an importance value to each line segment based on a length of a particular line segment and an area of a polygon within said polygonal framework of which said particular line segment is a side.

93. The apparatus of claim 77, wherein said processor assigns an importance value to each line segment by calculating a sum of results of an equation |E|×A for polygons sided by said particular line segment, wherein "|E|" is length of that line segment, "A" is an area of a polygon sided by said particular line segment.

94. The apparatus of claim 77, wherein said processor, in performing said assignment of importance values, is programmed to assign an importance value to each line segment based on a length of said line segments.

95. The apparatus of claim 77, wherein said processor assigns an importance value to each line segment in direct proportion to a length of that line segment.

96. The apparatus of claim 77, wherein if two or more line segments are assigned an identical degree of importance, said processor assigns a lowest degree of importance among said two or more line segments to that line segment of said two or more line segments with a shortest length.

97. The apparatus of claim 77, wherein said processor is further programmed to repeat said assignment of an importance value to each line segment; said removal of that line segment with the lowest importance value; and said reconfiguration said framework.

98. The apparatus of claim 77, wherein said processor is programmed to assign an importance value to each line segment based on an amount by which an amount of said image data is changed by removal of a particular line segment.

99. The apparatus of claim 77, wherein said processor is programmed to assign an importance value to each line segment based on importance values assigned by a user to one or more of said line segments.

100. The apparatus of claim 77, wherein said processor is programmed to reconfigure said framework by positioning a new vertex at a position such that a total loss of area between a framework including said line segment having said lowest importance value and a framework containing said new vertex and in which said lowest-importance-value line segment is removed is minimized.

101. The apparatus of claim 77, wherein said processor is programmed to reconfigure said framework by positioning a new vertex at a position such that a loss of area to said framework caused by removal of said lowest-importance-value line segment is approximately equal for portions of said framework on opposite sides of said new vertex.

102. The apparatus of claim 77, wherein said processor is programmed to reconfigure said framework by positioning a vertex at a position corresponding to an end of said removed lowest-importance-value line segment.

103. The apparatus of claim 77, wherein said processor is programmed to generate an intermediate configuration of said image data by decreasing a length of said lowest-importance-value line segment.

104. The apparatus of claim 77, wherein said processor is programmed to reconfigure said framework by generating a new vertex to replace a previous vertex located at an end of said removed, lowest-importance-value line segment.

105. A method of approximating an image by decreasing an amount of image data used to create the image, wherein said image data defines a polygonal framework, said framework being composed of line segments drawn between vertices, said method comprising:

assigning an importance value to each line segment of said framework;

removing from said framework that line segment having a lowest importance value; and

reconfiguring said framework to account for said removal of said line segment having said lowest importance value.

106. The method of claim 105, wherein said reconfiguring further comprises replacing two vertices of said framework, between which said removed line segment had been connected, with a single new vertex.

107. The method of claim 105, wherein said image data defines a 3-dimensional polygonal framework.

108. The method of claim 105, wherein said assigning an importance value to each line segment is performed by evaluating an amount by which a volume of the polygonal framework defined by the image data is changed by removal of a particular line segment.

109. The method of claim 108, wherein said assigning an importance value to each line segment further comprises assigning a line segment an importance value in direct proportion to the amount of volume change caused by removal of that line segment.

110. The method of claim 105, wherein said assigning an importance value to each line segment is performed using a vector (E) which represents a particular line segment, an area (A) of a polygon within said polygonal framework, wherein said particular line segment is a side of said polygon, and a vector (N) normal to a plane of said polygon.

111. The method of claim 110,

wherein said assigning an importance value to each line segment further comprises calculating an importance of a particular line segment by (N·E)×A,

wherein E is said vector representing a particular line segment, A is said area of a polygon sided by said particular line segment, and N is said normal vector.

112. The method of claim 105, wherein said assigning an importance value to each line segment is performed based on an amount by which an area of said polygonal framework defined by said image data is changed by removal of a particular line segment.

113. The method of claim 112, wherein said assigning an importance value to each line segment further comprises assigning an importance value to a particular line segment in direct proportion to said amount by which said area of said polygonal framework is changed by removal of that line segment.

114. The method of claim 105, wherein said assigning an importance value to each line segment is performed based on a length of a particular line segment and an area of a polygon within said polygonal framework of which said particular line segment is a side.

115. The method of claim 114, wherein said assigning an importance value to each line segment further comprises calculating a sum of results of an equation |E|×A for polygons sided by said particular line segment, wherein "|E|" is length of that line segment, "A" is an area of a polygon sided by said particular line segment.

116. The method of claim 105, wherein said assigning an importance value to each line segment is performed based on a length of said line segments.

117. The method of claim 116, wherein said assigning an importance value to each of said line segments further comprises assigning an importance value to each line segment in direct proportion to a length of that line segment.

118. The method of claim 105, wherein if two or more line segments are assigned an identical degree of importance,

said method further comprises assigning a lowest degree of importance among said two or more line segments to that line segment of said two or more line segments with a shortest length.

119. The method of claim **105**, further comprising repeating said steps of assigning an importance value to each line segment; removing that line segment with the lowest importance value; and reconfiguring said framework.

120. The method of claim **105**, wherein said assigning an importance value to each line segment is performed based on an amount by which an amount of said image data is changed by removal of a particular line segment.

121. The method of claim **105**, wherein said assigning an importance value to each line segment is performed based on importance values assigned by a user to one or more of said line segments.

122. The method of claim **121**, further comprising specifying one or more of said line segments as of high importance, wherein assigning an importance value to each line segment further comprises preventing said one or more high importance line segments from being removed.

123. The method of claim **105**, wherein said reconfiguring comprises positioning a new vertex at a position such that a total loss of area between a framework including said line segment having said lowest importance value and a framework comprising said new vertex and in which said lowest-importance-value line segment is removed is minimized.

124. The method of claim **105**, wherein said reconfiguring comprises positioning a vertex at a position such that a loss of area to said framework caused by removal of said lowest-importance-value line segment is approximately equal for portions of said framework on opposite sides of said vertex.

125. The method of claim **105**, wherein said reconfiguring comprises positioning a vertex at a position corresponding to an end of said removed lowest-importance-value line segment.

126. The method of claim **105**, further comprising, generating an intermediate configuration of said image data by decreasing a length of said lowest-importance-value line segment prior to said step of removing said lowest-importance-value line segment.

127. The method of claim **105**, further comprising, generating an intermediate polygonal framework between an original framework including said lowest-importance-value line segment and a new reconfigured framework with said lowest-importance-value line segment removed.

128. The method of claim **127**, wherein said generating an intermediate framework comprises locating a vertex an a position intermediate to a vertex position in said original framework and a new vertex position determined in said step of reconfiguring.

129. The method of claim **128**, wherein said locating a vertex at an intermediate position comprises using a linear interpolation on said vertex position in said original framework and said new vertex position determined in said step of reconfiguring.

130. The method of claim **105**, further comprising reconfiguring a texture applied to said framework to account for said removing of said lowest-importance-value line segment.

131. The method of claim **105**, wherein said assigning an importance value to each line segment is done in accordance with an assigned importance value of line segments contiguous to a particular line segment being evaluated.

132. The method of claim **105**, wherein said reconfiguring comprises using a new vertex to replace a previous vertex located at an end of said removed, lowest-importance-value line segment.

133. The method of claim **105**, wherein said assigning an importance value to each line segment comprises deciding that the degree of importance of said line segment is small as said change amount of said volume is small.

134. The method of claim **105**, wherein said assigning an importance value to each line segment is performed on the basis of a vector which is representing said line segment, an area of a plane of said image data which is composed by at least one of said vertices of said line segment, and a normal vector at said plane.

135. The method of claim **105**, wherein said assigning an importance value to each line segment is performed on the basis of a change amount of area of the image specified by said image data when said line segment is removed.

136. The method of claim **135**, wherein said assigning an importance value to each line segment comprises deciding that the degree of importance of said line segment is small as said change amount of said area is small.

137. The method of claim **105**, wherein said assigning an importance value to each line segment comprises deciding that the degree of importance of said line segment is small as said length of said line segment is short.

138. The method of claim **105**, wherein when two or more edges are assigned an identical degree of importance, a shortest line segment of said line segments receiving an identical degree of importance is said unnecessary edge.

139. The method of claim **105**, further comprising repeating the step of said evaluating a degree of importance of the line segment, the step of said removing said unnecessary line segment, and the step of said determining said position of said vertex after said unnecessary line segment is removed.

140. The method of claim **105**, wherein said evaluating a degree of said line segment is performed on the basis of a removal importance value of the line segment obtained from a change amount of said image data caused by the removing of said line segment and on the basis of an assigned importance value of the line segment assigned by a user.

141. The method of claim **140**, wherein said evaluating a degree of importance of the line segment decides that the degree of importance of said line segment is small, if said removal importance value and said assigned importance value are both small.

142. The method of claim **140**, wherein said assigned importance value is a removing order of said line segments.

143. The method of claim **105**, further comprising specifying at least one said line segment as of high importance, wherein said evaluating a degree of importance of said at least one line segment further comprises preventing said at least one high importance line segment from being designated as said unnecessary line segment.

144. The method of claim **143**, wherein said specifying the at least one line segment as of high importance is performed by a user.

145. The method of claim **143**, wherein said specifying the at least one line segment as of high importance specifies a portion where more than two image data are adjacent.

146. The method of claim **105**, wherein said vertex is decided at a position where a total loss of area between the original framework which is the framework before line segment removing and the reconfigured framework which is the framework after said line segment removing is minimized.

147. The method of claim **146**, wherein when the shape of the portion where said removal line segment is a concave or convex shape, said vertex is decided at a position where a total loss of area between said original framework and said reconfigured framework is minimized.

148. The method of claim 105, wherein said vertex is decided at a position where a loss of area between the original framework which is the framework before line segment removing and the reconfigured framework which is the framework after line segment removing is equal on both sides of said vertex.

149. The method of claim 148, wherein when the shape of the portion where said removal line segment is a S-character shape, said vertex is arranged at a position where a loss of area between said original framework and said reconfigured framework is equal on both sides of said vertex.

150. The method of claim 105, wherein said determining a position of said vertex determines the vertex at a position of one of the vertices of the removal line segment.

151. The method of claim 105, further comprising, generating an intermediate configuration of said image data by decreasing a length of said unnecessary line segment.

152. The method of claim 105, further comprising, generating an framework at intermediate layer between said original framework which is the framework before line segment removing and said reconfigured framework which is the framework after line segment removing by determining a position of vertices in the intermediate layer on the basis of the relation of vertices position between said original framework and said reconfigured framework.

153. The method of claim 105, further comprising reconfiguring a texture applied to said framework to account for said removing of said unnecessary line segment.

154. The method of claim 105, wherein said evaluation of degree of importance of the line segment is performed on the basis of an evaluation value of said line segment and evaluation values of peripheral line segments.

155. The method of claim 105, wherein said removing of unnecessary line segment removes either one of two vertices constructing the unnecessary line segment; and

said determining of a position of vertex determines amount of shift the vertex which is constructing the unnecessary line segment and not removed on said removing of unnecessary line segment.

156. An apparatus for approximating an image by decreasing an amount of image data used to create the image, wherein said image data defines a polygonal framework, said framework being composed of line segments drawn between vertices, said apparatus comprising:

a processing apparatus for:

evaluating a degree of importance of each line segment of said framework;

removing at least one unnecessary line segment from said framework which is identified based on said evaluation of said degree of importance of each line segment; and

determining a position of a vertex after said unnecessary line segment is removed.

157. The apparatus of claim 156, wherein said image data defines a 3-dimensional polygonal framework.

158. The apparatus of claim 156, wherein said evaluating a degree of importance of each line segment is performed by evaluating an amount by which a volume of the polygonal framework defined by the image data is changed by removal of a particular line segment.

159. The apparatus of claim 158, wherein said evaluating a degree of importance of each line segment further comprises assigning a line segment a degree of importance in direct proportion to the amount of volume change caused by removal of that line segment.

160. The apparatus of claim 156, wherein said evaluating a degree of importance of each line segment is performed using a vector (E) which represents a particular line segment, an area (A) of a polygon within said polygonal framework wherein said particular line segment is a side of said polygon, and a vector (N) normal to a plane of said polygon.

161. The apparatus of claim 160,

wherein said evaluating a degree of importance of each line segment further comprises calculating an importance of a particular line segment by $(N \cdot E) \times A$,

wherein E is said vector representing a particular line segment, A is said area of a polygon sided by said particular line segment, and N is said normal vector.

162. The apparatus of claim 156, wherein said evaluating a degree of importance of each line segment is performed based on an amount by which an area of said polygonal framework defined by said image data is changed by removal of a particular line segment.

163. The apparatus of claim 162, wherein said evaluating a degree of importance of each line segment further comprises assigning a degree of importance to a particular line segment in direct proportion to said amount by which said area of said polygonal framework is changed by removal of that line segment.

164. The apparatus of claim 156, wherein said evaluating a degree of importance of each line segment is performed based on a length of a particular line segment and an area of a polygon within said polygonal framework of which said particular line segment is a side.

165. The apparatus of claim 164, wherein said evaluating a degree of importance of each line segment further comprises calculating a sum of results of an equation $|E| \times A$ for polygons sided by said particular line segment, wherein "|E|" is length of that line segment, "A" is an area of a polygon sided by said particular line segment.

166. The apparatus of claim 156, wherein said evaluating a degree of importance of each line segment is performed based on a length of said line segments.

167. The apparatus of claim 166, wherein said evaluating a degree of importance of said line segments further comprises assigning a degree of importance to each line segment in direct proportion to a length of that line segment.

168. The apparatus of claim 156, wherein if two or more line segments are assigned an identical degree of importance, said processing apparatus assigns a lowest degree of importance among said two or more line segments to that line segment of said two or more line segments with a shortest length.

169. The apparatus of claim 156, wherein said processing apparatus repeats said evaluating a degree of importance of each line segment; said removing an unnecessary line segment; and said determining a position of a vertex after said unnecessary line segment is removed.

170. The apparatus of claim 156, wherein said evaluating a degree of importance of each line segment is performed based on an amount by which an amount of said image data is changed by removal of a particular line segment.

171. The apparatus of claim 156, wherein said evaluating a degree of importance of each line segment is performed based on importance values assigned by a user to one or more of said line segments.

172. The apparatus of claim 171, said processing apparatus specifies one or more of said line segments as of high importance, wherein said evaluating a degree of importance of each line segment further comprises preventing said one or more high importance line segments from being designated as said unnecessary line segment.

173. The apparatus of claim 156, wherein said determining a position of a vertex after said unnecessary line segment

is removed comprises positioning said vertex at said position such that a total loss of area between a framework including said unnecessary line segment and a framework in which said unnecessary line segment is removed is minimized.

174. The apparatus of claim **156**, wherein said determining a position of a vertex after said unnecessary line segment is removed comprises positioning a vertex at a position such that a loss of area to said framework caused by removal of said unnecessary line segment is approximately equal for portions of said framework on opposite sides of said vertex.

175. The apparatus of claim **156**, wherein said determining a position of a vertex after said unnecessary line segment is removed comprises positioning said vertex at a position corresponding to an end of said removed unnecessary line segment.

176. The apparatus of claim **156**, said processing apparatus generates an intermediate configuration of said image data by decreasing a length of said unnecessary line segment prior to said step of removing said unnecessary line segment.

177. The apparatus of claim **156**, said processing apparatus generates an intermediate polygonal framework between an original framework including said unnecessary line segment and a new framework with said unnecessary line segment removed.

178. The apparatus of claim **177**, wherein said generating an intermediate framework comprises locating a vertex an a position intermediate to a vertex position in said original framework and a vertex position determined in said step of determining a position of a vertex after said unnecessary line segment is removed.

179. The apparatus of claim **178**, wherein said locating a vertex at an intermediate position comprises using a linear interpolation on said vertex position in said original framework and said vertex position determined in said determining a position of a vertex after said unnecessary line segment is removed.

180. The apparatus of claim **156**, said processing apparatus reconfigures a texture applied to said framework to account for said removing of said unnecessary line segment.

181. The apparatus of claim **156**, wherein said evaluation of a degree of importance of each line segment is based in part on an evaluation of the degree of importance of line segments contiguous to a particular line segment being evaluated.

182. The apparatus of claim **156**, said processing apparatus reconfigures said framework after said unnecessary line segment has been removed by placing a new vertex at said position identified in said step of determining a position of a vertex.

183. The apparatus of claim **182**, wherein said reconfiguring comprises using said new vertex to replace a previous vertex located at an end of said unnecessary, removed line segment.

184. An apparatus for approximating an image by decreasing an amount of image data used to create the image, wherein said image data defines a polygonal framework formed of polygons to which textures or pictures are applied, said polygons of said framework being composed of line segments connected between vertices, said apparatus comprising:

a processing apparatus for:

evaluating a degree of importance of each line segment of said framework;

removing an unnecessary line segment identified by said step of evaluating a degree of importance of each line segment;

reconfiguring said framework to account for said removal of said line segment; and

reconfiguring said textures or pictures applied to said framework to account for said removal of said line segment.

185. The apparatus of claim **184**, wherein said reconfiguring the textures or pictures applied to the framework is preformed altering an association between a vertex of said unnecessary line segment and any of said textures or pictures.

186. The apparatus of claim **184**, wherein:

said reconfiguring of said framework comprises replacing two vertices of said framework, between which said unnecessary, removed line segment had been connected, with a single new vertex; and

said reconfiguring the textures or pictures applied to the framework comprises determining a new position on said textures or pictures corresponding to a position of said single new vertex in said framework.

187. The apparatus of claim **186**, wherein said interpolation is a linear interpolation.

188. The apparatus of claim **184**, wherein said evaluating a degree of importance of each line segment of said framework further comprises preventing any line segment existing on an outline of any of said textures or pictures from being designated as said unnecessary line segment.

189. The apparatus of claim **184**, wherein said evaluating a degree of importance of each line segment of said framework further comprises preventing any line segment, which exists on an outline of any of said textures or pictures from being designated as said unnecessary line segment if a change in an area of said texture or picture resulting from removal of that line segment exceeds a predetermined value.

190. The apparatus of claim **189**, wherein said area change amount after the line segment removal is obtained on the basis of a calculation of sum of results of an equation $|(N \cdot E) \times L|$ at line segments corresponding to the boundary lines of the texture or picture existing before and after the line segment to be removed, wherein "E" is representing that line segment, "L" is a length of line segment corresponding to the boundary lines of the texture or picture, "N" is a normal vector of said line segments, "·" is a inner product, and "×" is a product.

191. The apparatus of claim **184**, wherein said image data defines a 3-dimensional polygonal framework.

192. The apparatus of claim **184**, wherein said evaluating a degree of importance of each line segment is performed by evaluating an amount by which a volume of the polygonal framework defined by the image data is changed by removal of a particular line segment.

193. The apparatus of claim **192**, wherein said evaluating a degree of importance of each line segment further comprises assigning a line segment a degree of importance in direct proportion to the amount of volume change caused by removal of that line segment.

194. The apparatus of claim **184**, wherein said evaluating a degree of importance of each line segment is performed using a vector (E) which represents a particular line segment, an area (A) of a polygon within said polygonal framework wherein said particular line segment is a side of said polygon, and a vector (N) normal to a plane of said polygon.

195. The apparatus of claim **194**,

wherein said evaluating a degree of importance of each line segment further comprises calculating an importance of a particular line segment by $(N \cdot E) \times A$,

wherein E is said vector representing a particular line segment, A is said area of a polygon sided by said particular line segment, and N is said normal vector.

196. The apparatus of claim 184, wherein said evaluating a degree of importance of each line segment is performed based on an amount by which an area of said polygonal framework defined by said image data is changed by removal of a particular line segment.

197. The apparatus of claim 196, wherein said evaluating a degree of importance of each line segment further comprises assigning a degree of importance to a particular line segment in direct proportion to said amount by which said area of said polygonal framework is changed by removal of that line segment.

198. The apparatus of claim 184, wherein said evaluating a degree of importance of each line segment is performed based on a length of a particular line segment and an area of a polygon within said polygonal framework of which said particular line segment is a side.

199. The apparatus of claim 198, wherein said evaluating a degree of importance of each line segment further comprises calculating a sum of results of an equation |E|×A for polygons sided by said particular line segment, wherein "|E|" is length of that line segment, "A" is an area of a polygon sided by said particular line segment.

200. The apparatus of claim 184, wherein said evaluating a degree of importance of each line segment is performed based on a length of said line segments.

201. The apparatus of claim 200, wherein said evaluating a degree of importance of said line segments further comprises assigning a degree of importance to each line segment in direct proportion to a length of that line segment.

202. The apparatus of claim 184, wherein if two or more line segments are assigned an identical degree of importance, said processing apparatus assigns a lowest degree of importance among said two or more line segments to that line segment of said two or more line segments with a shortest length.

203. The apparatus of claim 184, said processing apparatus repeats said steps of evaluating a degree of importance of each line segment; removing an unnecessary line segment; reconfiguring said framework; and reconfiguring said textures or pictures.

204. The apparatus of claim 184, wherein said evaluating a degree of importance of each line segment is performed based on an amount by which an amount of said image data is changed by removal of a particular line segment.

205. The apparatus of claim 184, wherein said evaluating a degree of importance of each line segment is performed based on importance values assigned by a user to one or more of said line segments.

206. The apparatus of claim 205, said processing apparatus specifies one or more of said line segments as of high importance, wherein said evaluating a degree of importance of each line segment further comprises preventing said one or more high importance line segments from being designated as said unnecessary line segment.

207. The apparatus of claim 184, wherein said reconfiguring said framework comprises positioning a vertex at a position such that a total loss of area between a framework including said unnecessary line and a framework in which said unnecessary line segment is removed is minimized.

208. The apparatus of claim 184, wherein said reconfiguring said framework comprises positioning a vertex at a position such that a loss of area to said framework caused by removal of said unnecessary line segment is approximately equal for portions of said framework on opposite sides of said vertex.

209. The apparatus of claim 184, wherein said reconfiguring said framework comprises positioning a new vertex at a position corresponding to an end of said removed unnecessary line segment.

210. The apparatus of claim 184, said processing apparatus generates an intermediate configuration of said image data by decreasing a length of said unnecessary line segment prior to said step of removing said unnecessary line segment.

211. The apparatus of claim 184, said processing apparatus generates an intermediate polygonal framework between an original framework including said unnecessary line segment and a new framework with said unnecessary line segment removed.

212. The apparatus of claim 211, wherein said generating an intermediate framework comprises locating a vertex an a position intermediate to a vertex position in said original framework and a vertex position determined in said step of determining a position of a vertex after said unnecessary line segment is removed.

213. The apparatus of claim 212, wherein said locating a vertex at an intermediate position comprises using a linear interpolation on said vertex position in said original framework and said vertex position determined in said determining a position of a vertex after said unnecessary line segment is removed.

214. The apparatus of claim 184, wherein said evaluating a degree of importance of each line segment is based in part on an evaluation of a degree of importance of line segments contiguous to a particular line segment being evaluated.

215. The apparatus of claim 184, wherein said reconfiguring said framework comprises using a new vertex to replace a previous vertex located at an end of said unnecessary, removed line segment.

216. A medium for storing image data for approximating an image by decreasing an amount of said image data used to create the image, wherein said image data defines a polygonal framework, said framework being composed of line segments drawn between vertices, said medium comprising:

a memory unit for storing said image data, wherein said image data stored onto said memory unit are generated by:

evaluating a degree of importance of each line segment of said framework;

removing at least one unnecessary line segment from said framework which is identified based on said evaluation of said degree of importance of each line segment; and

determining a position of a vertex after said unnecessary line segment is removed.

217. The medium of claim 216, wherein said image data defines a 3-dimensional polygonal framework.

218. The medium of claim 216, wherein said evaluating a degree of importance of each line segment is performed by evaluating an amount by which a volume of the polygonal framework defined by the image data is changed by removal of a particular line segment.

219. The medium of claim 218, wherein said evaluating a degree of importance of each line segment further comprises assigning a line segment a degree of importance in direct proportion to the amount of volume change caused by removal of that line segment.

220. The medium of claim 216, wherein said evaluating a degree of importance of each line segment is performed using a vector (E) which represents a particular line segment, an area (A) of a polygon within said polygonal framework wherein said particular line segment is a side of said polygon, and a vector (N) normal to a plane of said polygon.

221. The medium of claim 220,

wherein said evaluating a degree of importance of each line segment further comprises calculating an importance of a particular line segment by (N·E)×A,

wherein E is said vector representing a particular line segment, A is said area of a polygon sided by said particular line segment, and N is said normal vector.

222. The medium of claim 216, wherein said evaluating a degree of importance of each line segment is performed based on an amount by which an area of said polygonal framework defined by said image data is changed by removal of a particular line segment.

223. The medium of claim 222, wherein said evaluating a degree of importance of each line segment further comprises assigning a degree of importance to a particular line segment in direct proportion to said amount by which said area of said polygonal framework is changed by removal of that line segment.

224. The medium of claim 216, wherein said evaluating a degree of importance of each line segment is performed based on a length of a particular line segment and an area of a polygon within said polygonal framework of which said particular line segment is a side.

225. The medium of claim 224, wherein said evaluating a degree of importance of each line segment further comprises calculating a sum of results of an equation |E|×A for polygons sided by said particular line segment, wherein "|E|" is length of that line segment, "A" is an area of a polygon sided by said particular line segment.

226. The medium of claim 216, wherein said evaluating a degree of importance of each line segment is performed based on a length of said line segments.

227. The medium of claim 226, wherein said evaluating a degree of importance of said line segments further comprises assigning a degree of importance to each line segment in direct proportion to a length of that line segment.

228. The medium of claim 216, wherein if two or more line segments are assigned an identical degree of importance, a lowest degree of importance among said two or more line segments is assigned to that line segment of said two or more line segments with a shortest length.

229. The medium of claim 216, further comprising repeating said evaluating a degree of importance of each line segment; said removing an unnecessary line segment; and said determining a position of a vertex after said unnecessary line segment is removed.

230. The medium of claim 216, wherein said evaluating a degree of importance of each line segment is performed based on an amount by which an amount of said image data is changed by removal of a particular line segment.

231. The medium of claim 216, wherein said evaluating a degree of importance of each line segment is performed based on importance values assigned by a user to one or more of said line segments.

232. The medium of claim 231, further comprising specifying one or more of said line segments as of high importance, wherein said evaluating a degree of importance of each line segment further comprises preventing said one or more high importance line segments from being designated as said unnecessary line segment.

233. The medium of claim 216, wherein said determining a position of a vertex after said unnecessary line segment is removed comprises positioning said vertex at said position such that a total loss of area between a framework including said unnecessary line segment and a framework in which said unnecessary line segment is removed is minimized.

234. The medium of claim 216, wherein said determining a position of a vertex after said unnecessary line segment is removed comprises positioning a vertex at a position such that a loss of area to said framework caused by removal of said unnecessary line segment is approximately equal for portions of said framework on opposite sides of said vertex.

235. The medium of claim 216, wherein said determining a position of a vertex after said unnecessary line segment is removed comprises positioning said vertex at a position corresponding to an end of said removed unnecessary line segment.

236. The medium of claim 216, wherein an intermediate configuration of said image data is generated by decreasing a length of said unnecessary line segment prior to said removing said unnecessary line segment.

237. The medium of claim 216, wherein an intermediate polygonal framework is generated between an original framework including said unnecessary line segment and a new framework with said unnecessary line segment removed.

238. The medium of claim 237, wherein said generating an intermediate framework comprises locating a vertex an a position intermediate to a vertex position in said original framework and a vertex position determined in said determining a position of a vertex after said unnecessary line segment is removed.

239. The medium of claim 238, wherein said locating a vertex at an intermediate position comprises using a linear interpolation on said vertex position in said original framework and said vertex position determined in said determining a position of a vertex after said unnecessary line segment is removed.

240. The medium of claim 216, further comprising reconfiguring a texture applied to said framework to account for said removing of said unnecessary line segment.

241. The medium of claim 216, wherein said evaluation of a degree of importance of each line segment is based in part on an evaluation of the degree of importance of line segments contiguous to a particular line segment being evaluated.

242. The medium of claim 216, further comprising reconfiguring said framework after said unnecessary line segment has been removed by placing a new vertex at said position identified in said determining a position of a vertex.

243. The medium of claim 242, wherein said reconfiguring comprises using said new vertex to replace a previous vertex located at an end of said unnecessary, removed line segment.

244. A medium for storing image data for approximating an image by decreasing an amount of image data used to create the image, wherein said image data defines a polygonal framework, said framework being composed of line segments drawn between vertices, said medium comprising:

a memory unit for storing said image data, wherein said image data stored onto said memory unit are generated by:

assigning an importance value to each line segment of said framework;

removing from said framework that line segment having a lowest importance value; and

reconfiguring said framework to account for said removal of said line segment having said lowest importance value.

245. The medium of claim 244, wherein said reconfiguring further comprises replacing two vertices of said framework, between which said removed line segment had been connected, with a single new vertex.

246. The medium of claim 244, wherein said image data defines a 3-dimensional polygonal framework.

247. The medium of claim 244, wherein said assigning an importance value to each line segment is performed by evaluating an amount by which a volume of the polygonal framework defined by the image data is changed by removal of a particular line segment.

248. The medium of claim 247, wherein said assigning an importance value to each line segment further comprises assigning a line segment an importance value in direct proportion to the amount of volume change caused by removal of that line segment.

249. The medium of claim 244, wherein said assigning an importance value to each line segment is performed using a vector (E) which represents a particular line segment, an area (A) of a polygon within said polygonal framework, wherein said particular line segment is a side of said polygon, and a vector (N) normal to a plane of said polygon.

250. The medium of claim 249,

wherein said assigning an importance value to each line segment further comprises calculating an importance of a particular line segment by (N·E)×A,

wherein E is said vector representing a particular line segment, A is said area of a polygon sided by said particular line segment, and N is said normal vector.

251. The medium of claim 244, wherein said assigning an importance value to each line segment is performed based on an amount by which an area of said polygonal framework defined by said image data is changed by removal of a particular line segment.

252. The medium of claim 251, wherein said assigning an importance value to each line segment further comprises assigning an importance value to a particular line segment in direct proportion to said amount by which said area of said polygonal framework is changed by removal of that line segment.

253. The medium of claim 244, wherein said assigning an importance value to each line segment is performed based on a length of a particular line segment and an area of a polygon within said polygonal framework of which said particular line segment is a side.

254. The medium of claim 252, wherein said assigning an importance value to each line segment further comprises calculating a sum of results of an equation |E|×A for polygons sided by said particular line segment, wherein "|E|" is length of that line segment, "A" is an area of a polygon sided by said particular line segment.

255. The medium of claim 244, wherein said assigning an importance value to each line segment is performed based on a length of said line segments.

256. The medium of claim 255, wherein said assigning an importance value to each of said line segments further comprises assigning an importance value to each line segment in direct proportion to a length of that line segment.

257. The medium of claim 244, wherein if two or more line segments are assigned an identical degree of importance, a lowest degree of importance is assigned among said two or more line segments to that line segment of said two or more line segments with a shortest length.

258. The medium of claim 244, further comprising repeating said steps of assigning an importance value to each line segment; removing that line segment with the lowest importance value; and reconfiguring said framework.

259. The medium of claim 244, wherein said assigning an importance value to each line segment is performed based on an amount by which an amount of said image data is changed by removal of a particular line segment.

260. The medium of claim 244, wherein said assigning an importance value to each line segment is performed based on importance values assigned by a user to one or more of said line segments.

261. The medium of claim 260, further comprising specifying one or more of said line segments as of high importance, wherein assigning an importance value to each line segment further comprises preventing said one or more high importance line segments from being removed.

262. The medium of claim 244, wherein said reconfiguring comprises positioning a new vertex at a position such that a total loss of area between a framework including said line segment having said lowest importance value and a framework comprising said new vertex and in which said lowest-importance-value line segment is removed is minimized.

263. The medium of claim 244, wherein said reconfiguring comprises positioning a vertex at a position such that a loss of area to said framework caused by removal of said lowest-importance-value line segment is approximately equal for portions of said framework on opposite sides of said vertex.

264. The medium of claim 244, wherein said reconfiguring comprises positioning a vertex at a position corresponding to an end of said removed lowest-importance-value line segment.

265. The medium of claim 244, wherein an intermediate configuration of said image data is generated by decreasing a length of said lowest-importance-value line segment prior to said removing said lowest-importance-value line segment.

266. The medium of claim 244, wherein an intermediate polygonal framework is generated between an original framework including said lowest-importance-value line segment and a new reconfigured framework with said lowest-importance-value line segment removed.

267. The medium of claim 266, wherein said generating an intermediate framework comprises locating a vertex an a position intermediate to a vertex position in said original framework and a new vertex position determined in said reconfiguring.

268. The medium of claim 267, wherein said locating a vertex at an intermediate position comprises using a linear interpolation on said vertex position in said original framework and said new vertex position determined in said reconfiguring.

269. The medium of claim 244, wherein a texture applied to said framework is reconfigured to account for said removing of said lowest-importance-value line segment.

270. The medium of claim 244, wherein said assigning an importance value to each line segment is done in accordance with an assigned importance value of line segments contiguous to a particular line segment being evaluated.

271. The medium of claim 244, wherein said reconfiguring comprises using a new vertex to replace a previous vertex located at an end of said removed, lowest-importance-value line segment.

272. A medium for storing image data for approximating an image by decreasing an amount of image data used to create the image, wherein said image data defines a polygonal framework formed of polygons to which textures or pictures are applied, said polygons of said framework being composed of line segments connected between vertices, said medium comprising:

a memory unit for storing said image data, wherein said image data stored onto said memory unit are generated by:

evaluating a degree of importance of each line segment of said framework;

removing an unnecessary line segment identified by said evaluating a degree of importance of each line segment;

reconfiguring said framework to account for said removal of said line segment; and

reconfiguring said textures or pictures applied to said framework to account for said removal of said line segment.

273. The medium of claim **272**, wherein said reconfiguring the textures or pictures applied to the framework is preformed altering an association between a vertex of said unnecessary line segment and any of said textures or pictures.

274. The medium of claim **272**, wherein:

said reconfiguring of said framework comprises replacing two vertices of said framework, between which said unnecessary, removed line segment had been connected, with a single new vertex; and

said reconfiguring the textures or pictures applied to the framework comprises determining a new position on said textures or pictures corresponding to a position of said single new vertex in said framework.

275. The medium of claim **274**, wherein said reconfiguring of said textures or pictures applied to the framework comprises determining said new position by interpolation between two points on the textures or pictures which correspond to the unnecessary line segment.

276. The medium of claim **275**, wherein said interpolation is a linear interpolation.

277. The medium of claim **272**, wherein said evaluating a degree of importance of each line segment of said framework further comprises preventing any line segment existing on an outline of any of said textures or pictures from being designated as said unnecessary line segment.

278. The medium of claim **272**, wherein said evaluating a degree of importance of each line segment of said framework further comprises preventing any line segment, which exists on an outline of any of said textures or pictures from being designated as said unnecessary line segment if a change in an area of said texture or picture resulting from removal of that line segment exceeds a predetermined value.

279. The medium of claim **278**, wherein said area change amount after the line segment removal is obtained on the basis of a calculation of sum of results of an equation $|(N \cdot E) \times L|$ at line segments corresponding to the boundary lines[]of the texture or picture existing before and after the line segment to be removed, wherein "E" is representing that line segment, "L" is a length of line segment corresponding to the boundary lines of the texture or picture, "N" is a normal vector of said line segments, "·" is a inner product, and "x" is a product.

280. The medium of claim **272**, wherein said image data defines a 3-dimensional polygonal framework.

281. The medium of claim **272**, wherein said evaluating a degree of importance of each line segment is performed by evaluating an amount by which a volume of the polygonal framework defined by the image data is changed by removal of a particular line segment.

282. The medium of claim **281**, wherein said evaluating a degree of importance of each line segment further comprises assigning a line segment a degree of importance in direct proportion to the amount of volume change caused by removal of that line segment.

283. The medium of claim **272**, wherein said evaluating a degree of importance of each line segment is performed using a vector (E) which represents a particular line segment, an area (A) of a polygon within said polygonal framework wherein said particular line segment is a side of said polygon, and a vector (N) normal to a plane of said polygon.

284. The medium of claim **283**,

wherein said evaluating a degree of importance of each line segment further comprises calculating an importance of a particular line segment by $(N \cdot E) \times A$,

wherein E is said vector representing a particular line segment, A is said area of a polygon sided by said particular line segment, and N is said normal vector.

285. The medium of claim **272**, wherein said evaluating a degree of importance of each line segment is performed based on an amount by which an area of said polygonal framework defined by said image data is changed by removal of a particular line segment.

286. The medium of claim **285**, wherein said evaluating a degree of importance of each line segment further comprises assigning a degree of importance to a particular line segment in direct proportion to said amount by which said area of said polygonal framework is changed by removal of that line segment.

287. The medium of claim **272**, wherein said evaluating a degree of importance of each line segment is performed based on a length of a particular line segment and an area of a polygon within said polygonal framework of which said particular line segment is a side.

288. The medium of claim **287**, wherein said evaluating a degree of importance of each line segment further comprises calculating a sum of results of an equation $|E| \times A$ for polygons sided by said particular line segment, wherein "|E|" is length of that line segment, "A" is an area of a polygon sided by said particular line segment.

289. The medium of claim **272**, wherein said evaluating a degree of importance of each line segment is performed based on a length of said line segments.

290. The medium of claim **289**, wherein said evaluating a degree of importance of said line segments further comprises assigning a degree of importance to each line segment in direct proportion to a length of that line segment.

291. The medium of claim **272**, wherein if two or more line segments are assigned an identical degree of importance, a lowest degree of importance is assigned among said two or more line segments to that line segment of said two or more line segments with a shortest length.

292. The medium of claim **272**, further comprising repeating said steps of evaluating a degree of importance of each line segment; removing an unnecessary line segment; reconfiguring said framework; and reconfiguring said textures or pictures.

293. The medium of claim **272**, wherein said evaluating a degree of importance of each line segment is performed based on an amount by which an amount of said image data is changed by removal of a particular line segment.

294. The medium of claim **272**, wherein said evaluating a degree of importance of each line segment is performed based on importance values assigned by a user to one or more of said line segments.

295. The medium of claim **294**, one or more of said line segments is specified as of high importance, wherein said evaluating a degree of importance of each line segment further comprises preventing said one or more high importance line segments from being designated as said unnecessary line segment.

296. The medium of claim **272**, wherein said reconfiguring said framework comprises positioning a vertex at a position such that a total loss of area between a framework including said unnecessary line and a framework in which said unnecessary line segment is removed is minimized.

297. The medium of claim 272, wherein said reconfiguring said framework comprises positioning a vertex at a position such that a loss of area to said framework caused by removal of said unnecessary line segment is approximately equal for portions of said framework on opposite sides of said vertex.

298. The medium of claim 272, wherein said reconfiguring said framework comprises positioning a new vertex at a position corresponding to an end of said removed unnecessary line segment.

299. The medium of claim 272, wherein an intermediate configuration of said image data is generated by decreasing a length of said unnecessary line segment prior to said removing said unnecessary line segment.

300. The medium of claim 272, wherein an intermediate polygonal framework between an original framework is generated to include said unnecessary line segment and a new framework with said unnecessary line segment removed.

301. The medium of claim 300, wherein said generating an intermediate framework comprises locating a vertex an a position intermediate to a vertex position in said original framework and a vertex position determined in said determining a position of a vertex after said unnecessary line segment is removed.

302. The medium of claim 301, wherein said locating a vertex at an intermediate position comprises using a linear At interpolation on said vertex position in said original framework and said vertex position determined in said determining a position of a vertex after said unnecessary line segment is removed.

303. The medium of claim 272, werein said evaluating a degree of importance of each line segment is based in part on an evaluation of a degree of importance of line segments contiguous to a particular line segment being evaluated.

304. The medium of claim 272, wherein said reconfiguring said framework comprises using a new vertex to replace a previous vertex located at an end of said unnecessary, removed line segment.

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